

## REMARKS

### I. Status of Claims

Claims 19 and 22-44 were pending.

Claims 33 and 35 were rejected under 35 U.S.C. 102(a) as being unpatentable over Chang et al. (US 7,359,345 B1).

Claims 19, 22-26, 29-31, 36 and 39 were rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US 7,359,345 B1) in view of Cao et al (EP 0993137).

Claims 37-38 and 40-44 were rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US 7,359,345 B1) in view of Cao et al (EP 0993137), in further view of 3GPP TS 25.321, version 5.6.0 (3GPP).

Claim 37 was objected to. Claim 37 has been amended to overcome the objection.

Accordingly, claims 19 and 22-44 are now pending. Claims 19 and 37 have been amended.

### II. Rejections under 35 U.S.C. § 102

#### *A. Claims 33 and 35*

Reasons for the rejection of claim 35 in view Chang in combination with 3GPP document are unclear to Applicant as it is unusual for a 35 U.S.C. § 102 claim rejection to be made on the basis of more than one cited document.

The Office Action relies only on Chang with respect to claim 33.

Claim 33 includes a plurality of RRC functionalities, disposed in the form of at least one control and/or data processing means, transferred from the radio network control entity RNC to the base station. Chang, outside of its discussion of the prior art, fails to discuss RRC functionalities or how such functionalities would be implemented in the context of Chang's disclosed method and systems.

The subject-matter of presently pending claim 33 supports an UTRAN protocol architecture with RRC functionality in the Base Station, so that radio resources can be managed closer to the air interface by inband signaling, but with higher layer functionalities. Consequently, reconfigurations of radio resources in the uplink and downlink can be carried out much more quickly and efficiently for a User Equipment. Hence, data transmission in the downlink and the uplink can be significantly improved in terms of transmission delay and data throughput.

The content cited in the Office Action (*Chang* at col. 5, lines 60-67 and col. 6 lines 1-9) does not disclose a plurality of RRC functionalities disposed in the form of at least one control and/or data processing means, transferred from the radio network control entity RNC to the base station.

*Chang* at col. 5, lines 60-67 cited in the Office Action discloses that a control message to be transmitted is generated by the RLC. The technique provided enables messaging between RLCs and/or MAC layers of Node B and UE, respectively, but is silent, outside of its discussion of the prior art, regarding RRC or other higher layer functions necessary for data transmission control. Chang would not disclose or suggest to person of ordinary skill in the art how to improve data transmission by allowing fast and efficient control of radio resources by implementing the control of radio resources on an RRC level in a Base Station.

For example, Chang discloses a packet communications system including a transmission apparatus and a reception apparatus, in which a signaling method between a MAC layer entity of the transmission apparatus and a MAC layer entity of the reception apparatus is

provided. *Chang* at col. 6, lines 25-30. A technique is provided in *Chang* for enabling a message exchange between MAC-hs layers of a Node B and a User Equipment UE *Chang* at col. 6, lines 8-9. In order to avoid a long time delay elapsing during communication between RLC arranged in the RNC and RLC arranged in the UE, *Chang* provides generating and transmitting control message in a MAC h-s by an RLC, wherein the RLC of the reception side analyzes this control message and performs necessary operations according to the results of the analysis. *Chang* at col. 5, line 60 to col. 6, line 9.

Claim 33 differs, in that it provides a communication system, wherein a plurality of RRC functionalities are disposed in the form of at least one control and/or data processing means transferred from the radio network control entity RNC to the base station.

Some of these functions are, for example, reconfiguration of physical channels in the uplink and downlink; reconfiguration of transport formats and transport format combinations in the uplink and downlink; switching of the transport channel type, i.e. from common transport channels to dedicated transport channels and vice versa; and setting of the uplink  $SIR_{target}$  for fast performance control of dedicated physical channels.

In other words, according to presently pending claim 33, functions of RRC, which is part of the UMTS protocol stack and handles the control plane signaling of layer 3 between the UE and the UTRAN, are transferred to the Base Station. This means that, according to presently pending claim 33, functionalities of layer 3, namely functionalities of the Radio Resource Control layer, which conventionally belongs to the core network, and thus functionalities of a level above layer 2, are transferred to the Base Station.

In contrast, RLC and MAC-hs entities are implemented in layer 2. *Chang* discloses transmitting control message in a MAC h-s by an RLC and is silent as to utilizing RRC functionalities in the context of *Chang*'s disclosed method and systems. That is, *Chang* does not disclose RRC functionality in a Base Station. Thus, *Chang* fails to disclose or suggest a plurality of RRC functionalities, disposed in the form of at least one control

and/or data processing means, transferred from the radio network control entity RNC to the base station, as required by claim 33.

Applicant submits that Chang cannot support a rejection of claim 33 under 35 U.S.C. § 102. Accordingly, Applicant requests that its rejection be withdrawn.

Claim 35 depends from claim 33, and is therefore patentable over Chang, alone or in combination with 3GPP, for at least the same reasons.

### III. Rejections under 35 U.S.C. § 103

*A. Claims 19, 22-26, 29-31, 36 and 39 and*

*B. Claims 37-38 and 40-44*

Applicants note that the Examiner has included claim 21 in the list of Claim Rejections under 35 U.S.C. § 103 cited in the Office Action although claim 21 was cancelled in a previous Office Action.

Amended claim 19 describes a method for transmitting data according to UMTS standard in which inband signaling of information relevant for the base station is performed at the MAC layer level. For the signaling between the mobile terminal and a UMTS base station a signaling transport block (STB) is introduced at the MAC layer level. The at least one STB comprises Buffer Status Report information based on at least one RRC message. The RRC message is issued by the UMTS base station (this feature is based on page 40 of the description pages). The Buffer Status Report information signals the data volume of the transport channel from the user terminal equipment to the UMTS base station (this feature is based on page 41 of the description pages). The at least one STB is multiplexed within the transport blocks of a transport channel that are to be transmitted (this feature is based on claim 21 which has now been canceled).

Chang fails to disclose an STB comprising Buffer Status Report information based on at least one RRC message. In contrast thereto, Chang aims to avoid the long time delay

during communication between an RLC arranged in the RNC and an RLC arranged in the UE. Thus the MAC-hs layer is designed to be arranged not in the RNC but in Node B. Hence, messages can be exchanged between Mac-hs layers in Node B and the UE. Thus, an STB comprising information based on an RRC message is not taught in the Chang document. *Chang* at col. 5, lines 15-17, lines 66-67, col. 6, lines 1-3, lines 7-9.

Further, Chang fails to disclose that the at least one RRC message is issued by the UMTS base station. Thus Chang fails to disclose an STB comprising Buffer Status Report information based on at least one RRC message generated by the UMTS base station.

Chang fails to disclose that the Buffer Status Report information signals the data volume of the transport channel from the user terminal equipment to the UMTS base station wherein the Buffer Status Report information is based on at least one RRC message generated by the UMTS base station.

Generating an STB at the MAC layer level, where the STB comprises information based on at least one RRC message, wherein the RRC message is issued by the UMTS base station allows certain RRC functionalities to be moved from the RNC to the base station. Throughout the Chang document, Chang is silent about the transfer of any RRC functionalities from the RNC to the MAC-hs layer, and thus, Chang is silent about the transfer of any RRC functionalities from the RNC to the base station.

Although Cao discloses that data packets for multiple users can be multiplexed into a single signal, Cao fails to cure the deficiencies of Chang because Cao fails to disclose that an STB comprising Buffer Status Report information can be multiplexed within the transport blocks of a transport channel that are to be transmitted.

The grouping of Buffer Status Report information to signaling transport blocks and multiplexing them within the transport blocks transmitted via a transport channel allows vital Buffer Status information concerning the data volume of the transport channel for the allocation of RRC resources to be efficiently transmitted by a transmitter between the

MAC layers of Node B and the UE, and for the receiver to easily detect the signaling Buffer Status information which is useful for the allocation of RRC resources.

Because the combination of Chang and Cao fails to teach or suggest the limitations of claim 19, Applicants submit that the combination cannot support a prima facie case of obviousness against claim 19. Because the Office Action fails to establish a prima facie case of obviousness in rejecting claim 19, the rejection under 35 U.S.C. § 103 should be withdrawn.

Claims 22-26, 29-31, and 36-44 ultimately depend on claim 19 and the rejection under 35 U.S.C. § 103 should also be withdrawn.

Although claims 37-38 and 40-44 ultimately depend on claim 19 and Applicants submit that their rejection under 35 U.S.C. § 103 should be withdrawn, Applicants note that the Examiner in the Office Action has cited the 3GPP document in rejection arguments against claims 37-38 and 40-44.

Applicants submit that even if the 3GPP document were to be taken into consideration in combination with Chang and Cao, the combination cannot support a prima facie case of obviousness against claims 37-38 and 40-44 for the following reasons.

The 3GPP document discloses primitives between a MAC layer and an RLC layer. *3GPP* section 8.2.1 and section 8.2.2.

“the parameter Buffer Occupancy (BO) indicates for each logical channel the amount of data in number of bytes that is available for transmission and retransmission in RLC layer.

*3GPP* Section 8.2.2.

3GPP document therefore does not disclose buffer status information of radio bearers, radio bearers being the standard technical term for the data transfer layer between RNC/Node B and the UE.

Therefore, the 3GPP document fails to disclose that Buffer Status Report information is based on at least one RRC message. Further the 3GPP document fails to disclose at least one RRC message generated by the UMTS base station.

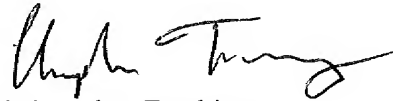
Applicants submit that because the combination cannot support a prima facie case of obviousness against claims 37-38 and 40-44, the rejection under 35 U.S.C. § 103 should also be withdrawn.

IV. Conclusion

In view of the foregoing remarks, Applicant respectfully requests reconsideration of this application and allowance of the pending claims.

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Respectfully Submitted,

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